Town of
Colma

Climate Action Plan



Town of Colma
1198 El Camino Real
Colma, CA 94014

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Table of Contents

1. Executive Summary 1
1.1 Benefits to the Town from Adopting a CAP 1
1.2 Technical Analysis 2
1.3 Colma's CAP Measures 2
1.4 CAP Implementation Strategies 4
1.5 Adaptation Planning for Climate Change Impacts 4
1.6 Elements of Colma's CAP 5
2. Background 6
2.1 Climate Change Impacts 6
2.2 How the CAP Benefits Colma 8
2.3 CAP Development Process 9
3. Technical Analysis 11
3.1 Colma's Baseline GHG Inventory 11
3.2 Colma's "Business as Usual" (BAU) GHG Projections 12
3.3 Colma's Emissions Reduction Target 13
3.4 How Colma Meets the 15% GHG Reduction Target 13
3.5 Impacts of San Mateo County's Climate Action Plan on Colma GHGs 15
3.6 Colma's Current Initiatives Addressing Climate Change 15
4. Colma's CAP Measures 17
5. CAP Implementation Strategies 26
5.1 Timeline 27
5.2 Monitoring and Improvement 27
6. Adaptation Planning for Climate Change Impacts 28
6.1 Adaptation Planning Strategies 28

Appendices

Appendix A: List of Acronyms 31
Appendix B: 10 Steps to Reduce Your Carbon Footprint 32
Appendix C: Summary of Potential Funding Sources 34
State Funding 34
PG&E Rebate Programs 35
Local Energy Programs 36
Federal Funding 37
Other Funding Opportunities 37
Appendix D: State, Regional and Local Efforts 38
State of California Climate Change Reduction Efforts 38
Regional and Local Efforts 39
Appendix E: Colma's 2005 and 2010 Municipal GHG Inventories 41

List of Figures

Figure 1: GHG Emissions at Unprecedented Levels 7
Figure 2: ICLEI 5-Milestone Process 9
Figure 3: Colma's GHG Projections Through 2020 14

List of Tables

Table 1: Colma's Baseline Inventory 2005 Community Emissions by Sector 2
Table 2: Measures and GHG Reductions 3
Table 3: Sectors and Emissions in the GHG Inventory 11
Table 4: Colma's Baseline Inventory 2005 Community Emissions by Sector 12
Table 5: Colma's BAU Emissions Forecast for 2020 12
Table 6: Colma's GHG Emissions, BAU Projection and Reduction Target 13
Table 7: Colma GHG Reductions from Statewide Actions 14
Table 8: How Colma Meets the 2020 Reduction Target 14
Table 9: Summary of Colma's CAP Measures 18
Table 10: CAP Implementation Timeline 27
Table 11: Adaptation Strategies and Measures 29

1. Executive Summary

A state mandate, AB 32 (California's Global Warming Solutions Act of 2006), requires statewide greenhouse gases (GHGs) to be reduced 15% below current levels (as measured in 2005), by the year 2020. The AB 32 Scoping Plan states that local governments are essential partners in achieving AB 32 targets and directs them to develop Climate Action Plans and meet GHG reduction targets. In response to this mandate, the Town of Colma has prepared a Climate Action Plan (CAP). The Town's CAP serves as a guiding document to identify measures and strategies that Colma can implement to reduce GHGs.

The Town of Colma has policy control over many important decisions that affect GHG reduction, such as energy efficiency requirements for residential and commercial projects, water conservation, bicycle lanes, green business certification programs, recycling programs and other strategies. Colma's CAP was developed collaboratively with a regional program that funded CAP development for participating jurisdictions. The resulting measures are outlined in this CAP and provide practical and effective methods to meet the 15% GHG reduction target of AB 32.

UNITED STATES MAYORS CLIMATE PROTECTION AGREEMENT

Colma's City Council signed the United States Mayors Climate Protection Agreement (USMCPA) in July 2008 and pledged to reduce emissions by completing GHG baseline studies, develop a CAP, prioritize energy efficiency through building codes, update land use planning, expand recycling and other sustainability actions.

The Colma CAP Development Team developed the Town's CAP after careful consideration of best practices and the most effective strategies for the unique community of Colma. An Internal Working Group was established to discuss proposed measures. The CAP will be reviewed by the City Council at a Study Session. It will then be released for review by community residents and businesses and outside agencies before final consideration and adoption by the City Council.

1.1 Benefits to the Town from Adopting a CAP

Achieves Economic Benefits

Residents, businesses and municipal operations can reduce costs through improved energy efficiency and reduced waste. Many cities use sustainability as an economic development opportunity and provide businesses with sustainability assistance and resources.[1]

Streamlines CEQA Requirements for Development Projects

If a future development project is consistent with the CAP, then it can be presumed that the project will not have significant GHG impacts, allowing Colma to streamline the California Environmental Quality Act (CEQA) GHG requirements for that project.

CLIMATE ACTION PLAN CO-BENEFITS

Colma's CAP provides practical and effective programs to reduce GHG to meet AB 32 goals. These programs also help Colma's homes and businesses be more energy efficient and reduce utility costs. They also reduce water consumption and improve indoor air quality for Colma residents and businesses.

[1] League of California Cities' *Western City* Magazine, May 2012

Attains Public Health Benefits

Green building requirements for commercial and residential buildings result in improved air quality, productivity, and improved quality of life. Colma seniors and young children will benefit from improved air quality.

Demonstrates Sustainability Leadership

Colma becomes part of the collective solution to climate change by implementing measures that reduce GHGs.

1.2 Technical Analysis

Colma's baseline *2005 Community-Scale Greenhouse Gas Emissions Inventory* includes the major GHG sources and emission quantities from municipal operations and the community. The GHG inventory totaled 49,955 GHG tons which can be broken up into sectors as shown in Table 1.

Table 1: Colma's Baseline Inventory 2005 Community Emissions by Sector

Sector	GHG Emissions ($MtCO_2e$)	Percentage of GHG Emissions
Residential/Commercial/Industrial Energy	13,337	27%
Transportation – Local, State and Off-Road	20,574	41%
Generated Waste	1,318	3%
Closed Landfills	14,726	29%
TOTAL	**49,955**	**100%**

Based on AB 32's 15% reduction target, Colma's GHG reduction target is 10,874 GHG tons reduced by 2020. Colma can achieve this target through implementation of CAP programs (2,594 tons) and statewide GHG reduction actions (8,353 tons). The total GHG reductions from Colma's CAP and state actions are 10,947, or 73 tons more than the required reduction target of 10,874.

1.3 Colma's CAP Measures

Staff selected Colma's CAP measures in collaboration with the Regionally Integrated Climate Action Planning Suite (RICAPS) program. Staff selected measures from RICAPS' list of 43 CAP measures that focused on the largest GHG sources and that would be effective in Colma's unique community. Staff vetted the CAP measures in meetings with an Internal Working Group comprised of Colma's staff. For each CAP measure, staff completed an analysis using RICAP worksheet calculators to determine the resulting GHG reduction. The RICAPS Worksheet Calculators showing the GHG calculations will be posted on the Town's website (www.colma.ca.gov) during the public review period.

The CAP measures, summarized in Table 2, fall into the following categories:

- Energy Efficiency, Water Conservation and Green Building
- Planning and Land Use/Increased Opportunities for Alternative Transportation
- Recycling and Waste Reduction
- Municipal Programs
- Solar and Renewable Energy Installations

Table 2: Measures and GHG Reductions

Measure	GHG Reductions ($MtCO_2e$)
Near Term Implementation: Next 1-3 years	
Energy Efficiency, Water Conservation and Green Building	
Implement Residential Energy and Water Efficiency Program	9
Implement Commercial Energy and Water Efficiency Program	199
Replace 80% of commercial parking lot lighting with energy efficient lighting	Supportive Measure
Participate in Bay Area Green Business Certification Program	71
Develop and implement a Green Building Ordinance	101
Planning, Land Use and Increased Opportunities for Alternative Transportation	
Implement mandatory Smart Growth development policies	39
Increase bicycle lanes and implement mandatory policies to include walkability and bicycling in new projects and renovations	301
Implement policies from *San Mateo County Sustainable Green Streets and Parking Lot Design Guidebook*	Supportive Measure
Promote mandatory Transportation Demand Management (TDM) strategies to new businesses with more than 50 employees	Supportive Measure
Promote Transportation Demand ManagementTDM strategies to existing businesses with more than 50 employees	Supportive Measure
Implement parking policies for new developments and renovation projects that require prioritized parking for low carbon fuel vehicles and bicycle parking and unbundle parking from property costs	473
Update the General Plan to be consistent with the CAP	Supportive Measure
Implement new planning review requirement for new and redeveloped commercial projects to include preferred parking	250
Recycling and Waste Reduction	
Increase recycling and waste diversion to meet 80% diversion rate	838
Implement single use bag ban and polystyrene ban	Supportive Measure
Municipal Programs	
Develop and implement a Town Sustainability Policy	76
Promote commute alternatives for Town employees and the public	8
Replace 100% street, signal, park, and parking lot lighting with energy efficient lighting	24
Adopt Green Building Ordinance for new Town-sponsored projects and major renovations	2

Measure	GHG Reductions ($MtCO_2e$)
Complete a solar installation feasibility study of Town properties and consider participating in regional joint purchase program for solar where feasible and cost-effective	Supportive Measure
Expand tree planting on public properties and use native and drought tolerant trees/plantings	98
Establish method to integrate CAP measures into Town projects and day-to-day decisions	Supportive Measure
Research methods to reduce methane released from closed landfills and collaborate with landfill owners where feasible	Supportive Measure
Solar and Renewable Energy Installations	
Promote solar/renewable energy installations for commercial and residential	11
Longer-Term Implementation: Next 4-8 years	
Adopt a Commercial Energy Efficiency Ordinance	94
Total GHG Reductions	2,594

1.4 CAP Implementation Strategies

Successful implementation of Colma's CAP requires collaboration of Town staff, the business community and residents, and the ongoing support from the City Council. Where feasible, CAP implementation will be integrated into staff's current workplans. However, some measures have associated costs, totaling approximately $33,000 per year. Once the City Council adopts the CAP, Town staff will conduct a cost-benefit analysis of each of the measures, including the best method for implementation and the impacts on the commmunity, and bring recommendations for implementation back to Council.

Once the CAP is adopted by the City Council, the following implementation actions are recommended:

- Ensure CAP measures are considered and integrated into Town projects as early as feasible (e.g. CIP projects).
- Institutionalize sustainability in Town procedures and policies.
- Consider adding "Consistent with Colma's Climate Action Plan" or similar language in City Council staff reports to detail how the recommended action is consistent with the CAP.
- Consider completion of a GHG inventory every three to five years to determine progress toward the 2020 GHG reduction target.
- Leverage financial rebate programs.
- Expand website information and post marketing materials at key locations.
- Provide an annual CAP progress report to the City Council and post progress on the Town website. Monitoring CAP implementation progress is a critical component to ensure that the GHG reduction targets are met.

1.5 Adaptation Planning for Climate Change Impacts

The Colma CAP includes a discussion on Adaptation Planning. This section addresses the ways in which Colma could be impacted by regional and global climate change and the Town's role in supporting regional and state agencies in adapting to these changes. Some of the potential impacts include:

- Damage to regional infrastructure such as Highway 101, San Francisco International Airport, water infrastructure and storm drain infrastructure due to sea and bay level rise.
- Regional drought.
- Impacts to people, animals and plants due to potential increased heat.
- Potential increased wildfire risk.
- Potential damage to local and regional agricultural resources.

Adaption Planning is a long-term regional process that should allow immediate action when necessary and adjust to changing conditions and new knowledge. Adaptation will likely be an ongoing process of planning, prioritization and specific project implementation.

1.6 Elements of Colma's CAP

- **Section 1 Executive Summary**.
- **Section 2 Background**. Gives a background on climate change and describes how having a CAP benefits Colma and how the CAP was developed.
- **Section 3 Technical Analysis**. Describes the important concepts of GHG reduction including Colma's baseline *2005 Community-Scale Greenhouse Gas Emissions Inventory* and Colma's GHG reduction target.
- **Section 4 Colma's CAP Measures**. Describes the measure categories and each recommended measure along with a description, its benefits, responsible staff, estimated reduction of GHG and whether it is a top priority for implementation.
- **Section 5 CAP Implementation Strategies**. Details methods to integrate CAP measures into Town project planning decisions and decision-making processes. Successful implementation of Colma's CAP requires the active participation and collaboration of Town staff, the business community, residents and the ongoing support from the City Council.
- **Section 6 Adaptation Planning for Climate Change Impacts**. Includes potential adaptation strategies for climate change.
- **Appendix A: List of Acronyms**. Contains a list of acronyms used in this document.
- **Appendix B: 10 Steps to Reduce Your Carbon Footprint**. Contains specific actions that community members can take today.
- **Appendix C: Summary of Potential Funding Sources**. Lists potential CAP funding sources, financial incentives and program rebates from federal, state and regional agencies.
- **Appendix D: State, Regional and Local Efforts**. Describes state and regional government and non-profit efforts to reduce GHGs.
- **Appendix E: Colma's 2005 and 2010 Municipal GHG Inventories**. Contains tables comparing the two inventories.

2. Background

2.1 Climate Change Impacts

Climate Change Background

Climate change refers to all aspects of the climate, including disruptions to weather patterns and shrinking of glaciers, accelerated sea level rise, more intense heat waves, shifts in animal and plant ranges, and changes in the timing of plant reproduction.[2]

The world's leading climate experts on the Intergovernmental Panel on Climate Change (IPPC) concluded that human activities are increasing GHG concentrations in the atmosphere that increase the earth's temperature and cause climate change.[3] The largest GHG contributors are carbon dioxide (CO_2) followed by methane (CH_4) and nitrous oxide (N_2O) and other gases.

The primary cause of climate change is the burning of fossil fuels to drive cars and generate electricity in homes and businesses; these release CO_2 and other heat trapping gases into the atmosphere. This activity disrupts the balance in the "thermal blanket" of gases that exist naturally in the atmosphere and that enable the earth to support life. These additional GHGs trap in heat that would otherwise escape into space. Once in the earth's atmosphere, these heat-trapping emissions persist for about 100 years.

During the past 100 years, average temperatures have risen more than 1°F (Fahrenheit) worldwide. A 1°F change is unusual in the earth's history because the global average temperature is stable over long periods of time. Small changes in temperature correspond to enormous changes in the earth's environment. The existing and anticipated effects of climate change are increasingly challenging.

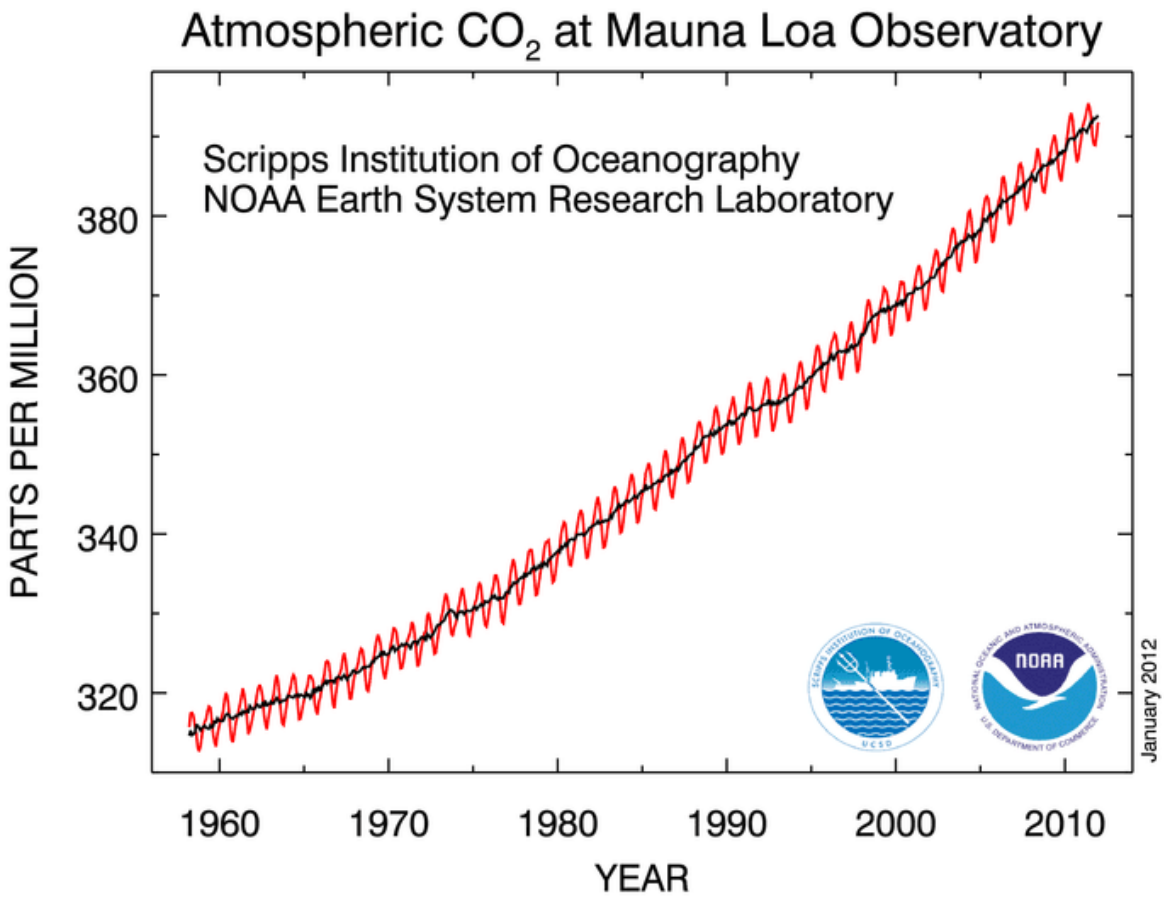
The current scientific consensus is that a 2°C increase in average global temperature over the next century is a "safe" level for the earth to avoid the more serious consequences of climate change. To limit the average global temperature increase to 2°C, GHG concentrations need to be stabilized at a level below 450 parts per million (ppm). Currently, global atmospheric concentration of GHGs stands at 390 ppm. Achieving this level requires global GHGs to be reduced by at least 50% below their 1990 levels by the year 2050.

The concentration of CO_2 in the atmosphere has increased more than 30% above pre-industrial levels and by 70% between 1970 and 2004. If left unchecked, by the end of the century, CO_2 concentrations could reach levels three times higher than pre-industrial times, causing climate change that threatens public health, the economy, and the environment.[4]

In response to the threat of climate change, countries began to address GHG reductions, most notably through the 2007 Kyoto Protocol, an international environmental treaty designed for countiries to stabilize GHGs. In the United States, the Kyoto Protocol was not adopted on a national level and the United States Mayors Climate Protection Agreement[5] was the response by local governments to catalyze GHG reduction actions at the local level. Over 1,050 cities have signed the U.S. Mayors Climate Protection Agreement to date.

[2] National Aeronautics and Space Administration, climate.nasa.gov/effects/
[3] *Summary for Policymakers*, Intergovernmental Panel on Climate Change 2007
[4] *Our Changing Climate: Assessing the Risks to California*, www.energy.ca.gov/2006publications/CEC-500-2006-077/
[5] The United States Mayors Climate Protection Agreement states that local governments will take responsibility for reducing emissions at the local level.

Figure 1: GHG Emissions at Unprecedented Levels



Source: U.S. National Oceanic and Atmospheric Administration (NOAA)

The U.S. National Atmospheric and Oceanic Administration (NOAA) monitors the level of atmospheric CO_2. The graph in Figure 1 above shows that CO_2 levels have increased remarkably from 1958 through 2010. Carbon dioxide concentration has risen from pre-industrial levels of 280 ppm to about 390 ppm in 2010. Since 1958 alone, concentrations have risen by 75 ppm. The current CO_2 level is higher than it has been in at least 800,000 years.

The State of California is a leader in developing policies and regulations to address the risk of severe climate change. The California legislature adopted AB 32 known as the California Global Warming Solutions Act of 2006 and the California Air Resources Board (CARB) was tasked as the lead agency to develop regulatory and market mechanisms to reduce emissions. CARB's Scoping Plan provides a comprehensive set of actions designed to reduce overall emissions, improve the environment, reduce California's dependence on oil, diversify its energy sources, save energy, create new jobs, and enhance public health.

Types of Climate Change Impacts

Rising Sea Levels/San Francisco Bay levels. Sea level is projected to rise 16 inches by 2050 (using 2000 as the baseline) and between 40 and 55 inches by 2100. This means flooding impacting 270,000 Bay Area residents, and an estimated $36 billion in at-risk property by 2050, and $62 billion by 2100.[6]

[6] *Sea-Level Rise Interim Guidance Document*. www.opc.ca.gov/webmaster/ftp/project_pages/Climate/SLR_Guidance_Document.pdf

Negative Impacts on Infrastructure. As a result of climate change, San Francisco Bay shores are vulnerable to flooding from 16-inch and 55-inch rises in sea level.[7] The Bay shoreline provides vital ecological, industrial, and residential functions. The Town of Colma is not directly at risk due to sea level rise, with the exception of impacts to the South San Francisco Treatment Plant, but would be indirectly impacted by changes to water levels. The San Francisco Airport and the Port of Redwood City are at risk, as well as critical transportation infrastructure including segments of Highway 101, approaches to the Dumbarton and San Mateo Bridges, and the Caltrain railroad. Additional San Mateo County infrastructure and facilities at risk include:

- $24 billion worth of buildings, 530 miles of roadways, 10 miles of railroads, 78 EPA-regulated hazardous materials sites and 34 square miles of coastal wetlands (none of which are in Colma).
- San Francisco Airport (SFO), including the 31 MW United Cogen power plant located there.
- Wastewater treatment plants operated by South San Francisco/San Bruno, Millbrae, San Mateo, South Bayside System Authority, Mid-Coastside Sewer Authority, and SFO (total treatment capacity of approximately 44 MGD).

Extreme Weather Patterns and Related Effects. Climate change is expected to produce more frequent and extreme droughts and hurricanes, rising temperatures and sea level, rapidly retreating glaciers, thawing permafrost and reduced growing seasons.

Decreasing Fresh Water Supply. Water supply and quality problems will be amplified by climate change in most regions. Declines in Sierra Nevada snowpack (projected to decrease 25% by 2050) will affect Hetch Hetchy water storage and supply.

Reduced Food Production. Increased heat, pests, water stress, diseases, and weather extremes will pose adaptation challenges for crop and livestock production.

Impacts on Public Health. Increased air pollution and increased waterborne diseases and diseases transmitted by insects and rodents are expected and can especially affect children and seniors.

Impacts on Future Generations. Climate change impacts can depend on decisions made today**.** The rate of future climate change depends primarily on current and future human-caused emissions of heat-trapping gases. New programs that reduce GHGs can limit future climate change.

ENERGY UPGRADE PROGRAM SUCCESS

San Mateo County homeowners who completed energy upgrades through the Energy Upgrade Program saved an average of 31% on their energy bills.

2.2 How the CAP Benefits Colma

- **Achieves Economic Benefits**. Residents, businesses, and municipal operations reduce utility costs through increased energy and water efficiency, sending less waste to landfill, and reduced consumption of natural resources. Recent research shows energy and water efficiency programs can reduce costs by 20-40% for residents and businesses. Commercial and residential green building requirements increase real estate value due to an excellent return of investment for green buildings. Commercial green building projects result in life cycle savings of more than 10 times the initial investment.[8]
- **Streamlines CEQA Requirements for Future Development Projects**. In February 2010, CEQA Guidelines were updated to require jurisdictions to consider GHG impacts of development projects and include analysis in related environmental review documents. This CAP is developed to be a "Qualified GHG Reduction Strategy" and, according to the Bay Area Air Quality Management

[7] Maps available at http://www.pacinst.org/reports/sea_level_rise/hazmaps.html

[8] *Green Building and Market Report. How to Measure the ROI on LEED* October 2012. *The Value of Green Homes* documented green homes sell for 9% more than non-green homes. UCLA, July 2012.

District (BAAQMD), if a future development project is consistent with a Qualified GHG Reduction Strategy, then it can be presumed that the project will not have significant GHG impacts, allowing Colma to streamline CEQA GHG analysis requirements for that project.[9] For example, if a new building is constructed during the life of the CAP, it will be built under the green building ordinance, a CAP program. The building will use less energy over its life than the same building built without additional energy efficiency features. By the Town having a Qualified GHG Reduction Strategy, an analysis of the building's GHG impacts on the environment may not be required under CEQA.

- **Attains Public Health and Quality of Life Benefits**. Climate change and an increase in GHG can result in the increased incidence of asthma and cause other health consequences. Colma seniors and young children will benefit from improved air quality and likely experience better health. Green building requirements for commercial and residential buildings will result in improved air quality, productivity, and an improved quality of life.
- **Demonstrates Sustainability Leadership**. According to the Intergovernmental Panel on Climate Change, climate change results in severe weather patterns, water shortages, rising sea levels and several other major negative impacts, and agree that climate change is occurring now. Colma becomes part of the collective solution by implementing sustainability measures that reduce GHGs.

2.3 CAP Development Process

The 5-Milestone CAP development process is based on the International Council for Local Environmental Initiatives (ICLEI)/Local Governments for Sustainability's protocols, increasing knowledge through each step to achieve the GHG reduction target.

Figure 2: ICLEI 5-Milestone Process



- **Leadership Commitment**: Define the overall vision and goals for the community. Colma completed this step through the City Council's approval of the United States Mayors Climate Protection Agreement in 2008.
- **Milestone 1 (Inventory Emissions)**: Conduct a baseline emissions inventory and forecast. In 2010, Colma completed the *2005 Government Operations Greenhouse Gas Emissions Inventory* and the *2005 Community-Scale Greenhouse Gas Emissions Inventory*.

[9] State CEQA Guidelines Section 15183.5a: "Later project-specific environmental documents may tier from and /or incorporate by reference that existing programmatic review ("Qualified GHG Reduction Strategy")."

- **Milestone 2 (Establish Target)**: Adopt a GHG reduction target for the forecast year. Colma's recommended 2020 GHG reduction target is included in the CAP for the Council's consideration.
- **Milestone 3 (Develop Climate Action Plan)**: Identify feasible strategies and supporting actions to reduce emissions and achieve benefits aligned with the overall vision and goals.
- **Milestone 4 (Implement Climate Action Plan)**: Implementation of CAP measures is planned to begin in 2013.
- **Milestone 5 (Monitor/Evaluate Progress)**: Establish feedback loops to assess and improve performance, including assessment and adjustment of staff, financial and data resources. Monitoring and evaluating will begin in 2013 for Colma's CAP.

3. Technical Analysis

3.1 Colma's Baseline GHG Inventory

The *Town of Colma 2005 Community-Scale Greenhouse Gas Emissions Inventory*[10] provides a baseline year, 2005, against which progress toward the goal of reducing GHGs 15% by 2020 can be measured. The GHG inventory follows the protocol standard outlined in the BAAQMD's GHG Plan Level Quantification Guidance and the ICLEI GHG Emission Analysis Protocol. Table 3 summarizes the sectors, emissions sources, and energy types included in the GHG inventory.

Table 3: Sectors and Emissions in the GHG Inventory

Sector	Emissions Sources	Energy Types
Residential	Energy and water use in residential buildings	Electricity Natural gas
Commercial	Energy and water use in commercial, government and institutional buildings	Electricity Natural gas
Industrial	Energy and water use in industrial facilities, and processes	Electricity Natural gas
Transportation and Land Use[11]	All road vehicles Public transportation Off-road vehicles/equipment	Gasoline Diesel Compressed natural gas Liquefied natural gas Biodiesel
Waste	Waste to landfills	Landfill gas (methane)

The industry-accepted methodology for quantifying a community-wide GHG inventory focuses on emissions that occur from combustion sources within a jurisdiction's limits and from its electricity consumption.

Colma's GHG Inventory used 2005 data on electricity and natural gas consumption, vehicle miles traveled (VMTs) and solid waste and converted it into carbon dioxide equivalents (CO_2e), using specific coefficients according to fuel or waste types. The Town's inventory total for 2005 was 49,955 GHG tons. Energy usage within residential, municipal and commercial/industrial sectors (electricity and natural gas used) is 38% of Colma's GHGs. The transportation sector – vehicles driven within Colma's geographical boundaries on local, state and off-road equipment – is 58%. Off-road equipment includes lawnmowers, garden equipment, and construction, industrial, and light commercial equipment. Landfilled waste from the residential, municipal and commercial sector is 4% of Colma's GHGs. **GHG tons from closed landfills totaling 14,726 are included in this baseline inventory for informational purposes only, but were subtracted from the GHG target due to Colma's limited policy control over landfill operations**. This decision to exclude landfill tonnage in the GHG reduction target is consistent with conversations with County staff and the BAAQMD staff.

Table 4 is an excerpt from Colma's 2005 Community Inventory and lists the contributing GHG sectors and their respective tons and the sector percentage with and without the landfill's GHGs.

[10] Developed by ICLEI/Local Governments for Sustainability USA October 2010.
[11] Information for the transportation and land use sectors may be updated in a new version of the BAAQMD GHG Plan Level Quantification Guidance. For updates to the GHG Plan Level Quantification Guidance, check the BAAQMD website: www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx

Table 4: Colma's Baseline Inventory 2005 Community Emissions by Sector

Sector	GHG Emissions ($MtCO_2e$)	Percentage of GHG Emissions w/ Landfill	Percentage of GHG Emissions w/o Landfill
Residential Energy	1,518	3%	4%
Commercial/Industrial Energy	11,819	24%	34%
Transportation – Local Roads	12,074	24%	34%
Transportation – State Highways	6,068	12%	17%
Transportation – Off-road Equipment	2,432	5%	7%
Generated Waste	1,318	3%	4%
Closed Landfills	14,726	29%	0%
TOTAL	**49,955**	**100%**	**100%**

3.2 Colma's "Business as Usual" (BAU) GHG Projections

Based on Colma's 2005 emission inventories, emissions for the year 2020 can be forecasted. This forecast is essential to compare Colma's future reductions with future emissions levels, not the current levels. The 15% GHG reduction from 2005 levels will require reducing the current and the projected GHGs through 2020 and 2050.

Table 5 presents the GHGs for Colma if the Town did not implement any measures to reduce GHGs through 2020. Colma's estimated BAU forecast for 2020 is 40,819 tons. Actual calculations of GHGs used in the CAP will vary slightly from these numbers due to calculation refinements. The projected BAU GHGs are based on the emissions from the existing growth pattern prior to the adoption of this CAP and the energy and water consumption, vehicle miles travelled and waste disposal. Projections from the 2005 base year uses growth factors specific to each of the different economic sectors.

Table 5: Colma's BAU Emissions Forecast for 2020

Emissions Sources	2005 ($MtCO_2e$) [12]	BAU Emissions 2020	Annual Growth Rate	Percent change from 2005 to 2020
Residential	1,518	1,618	0.43%	6.7%
Commercial/Industrial	11,819	13,752	1.01%	16.4%
Transportation	20,574	24,042	1.044%	16.9%
Waste	1,318	1,406	0.43%	6.7%
TOTAL	35,229	40,819	0.99%	15.9%

The forecasts are by sector, because specific factors affect each sector differently (e.g., new building energy codes or new fuel economy standards for vehicles). This approach provides a better approximation of Colma's future emissions.

[12] Note this excludes closed landfill GHG emission tonnage data per prior discussion in this CAP.

3.3 Colma's Emissions Reduction Target

The *AB 32 Scoping Plan* directs local governments to reduce their GHGs by at least 15% by 2020 compared with 2005 (current levels) and directs local governments to assist the State in meeting California's emissions goals. Most cities have adopted community-wide emissions reduction targets at least 15% below 2005 levels by 2020. Some cities in the Bay Area have sought even stricter emissions targets.The CAP Development Team and the Internal Working Group agreed to set the Colma's GHG reduction target to meet the AB 32 15% reduction target. Table 6 shows that Colma'a BAU quantity produced between 2005 and 2020 is 40,819 tons annually. Colma's GHG baseline in 2005 was 35,229 tons. The target is a 15% reduction of the baseline, which is 29,945 tons. Therefore, to meet the target, Colma needs to reduce 10,874 tons of GHGs between now and 2020 (2020 BAU of 40,819 tons minus 2020 Target Emissions at 15% below 2005 at 29,945 tons equals 10,874 tons).

Table 6: Colma's GHG Emissions, BAU Projection and Reduction Target

2020 BAU Emissions ($MtCO_2e$)	2005 Emissions ($MtCO_2e$)	2020 Target Emissions at 15% below 2005 ($MtCO_2e$)	Emissions Reductions Required ($MtCO_2e$)
40,819	35,229	29,945	10,874

3.4 How Colma Meets the 15% GHG Reduction Target

Colma needs to reduce 10,874 tons of GHGs between now and 2020 and achieves this target through a combination of Colma's CAP and additional statewide GHG reduction actions. The State of California has passed the following legislation that specifically benefits Colma's GHG reductions:

- **California's Renewable Portfolio Standard (RPS)** requires California's electric utilities to have 33% of their retail sales sourced from eligible renewable resources by 2020 and all subsequent years. Renewable resources include wind, solar, geothermal, wave, and small hydroelectric power.
- **Assembly Bill (AB) 1493 ("Pavley Bill")** directs the CARB to adopt standards that will achieve "the maximum feasible and cost-effective reduction of GHG from motor vehicles," taking into account environmental, social, technological, and economic factors. In September 2009, the CARB adopted amendments to the "Pavley" regulations to reduce GHGs in new passenger vehicles from 2009 through 2016.
- **Low Carbon Fuel Standards (LCFS)** sets regional emissions targets and tasks regional planning organizations to recalibrate land use and transportation planning to meet those emissions targets. SB 375 targets for the San Francisco Bay Area are 7% below 2005 levels by 2020 and 15% below 2005 levels by 2035.

Table 7 shows how these inititatives benefit Colma.

Table 7: Colma GHG Reductions from Statewide Actions

State Initiative	Sector	% Reduction from 2020 GHG Inventory	Colma's GHG Reduction ($MtCO_2e$)
AB 1493 (Pavley)	Transportation	19.7%	4,736
LCFS	Transportation	7.2%	1,731
33% RPS	Energy (Electricity)	21%	1,886
Total Tons from Statewide Initiative Emissions Reductions			8,353

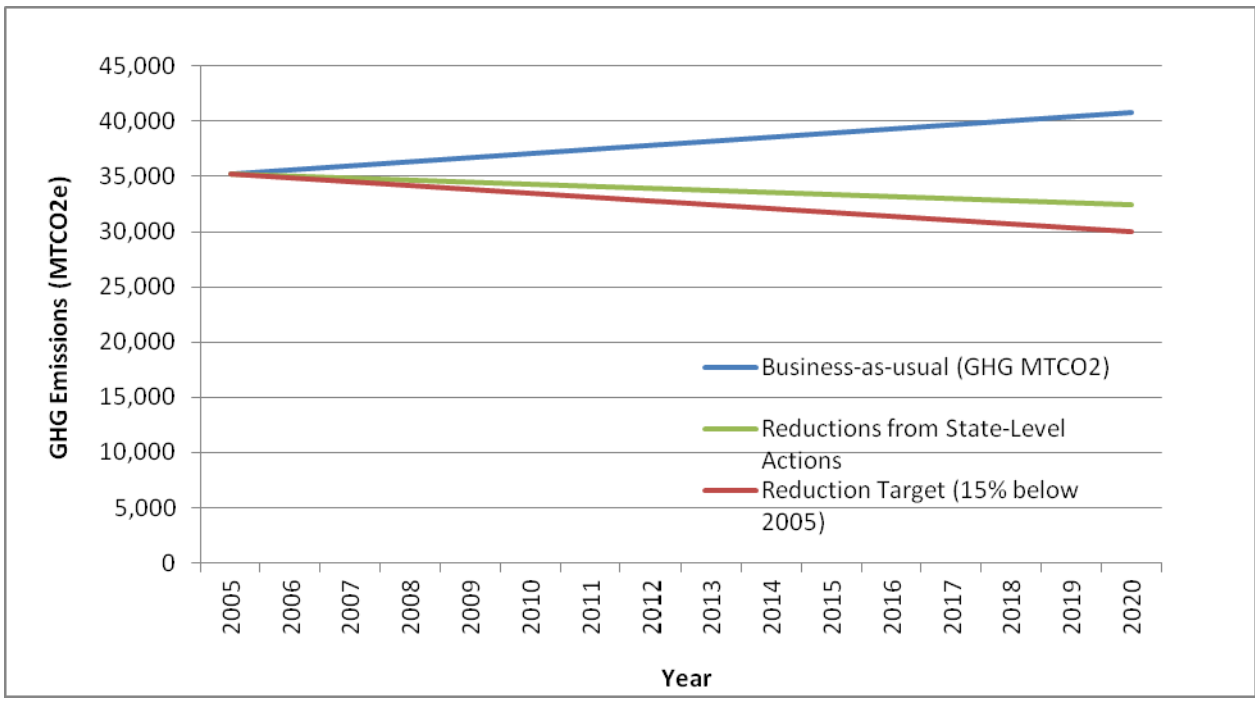
Colma's CAP measures reduce GHGs by a total of 2,594 tons (see Table 9 for details), well short of the required reductions. Colma achieves the required additional GHG reductions from the statewide actions that total 8,353 tons. Therefore, the total GHG reductions from Colma's CAP and state actions are 10,947, or 73 tons more than the required reduction target of 10,874. This is shown in Table 8.

Table 8: How Colma Meets the 2020 Reduction Target

Summary	Colma's GHG Reduction ($MtCO_2e$)
Total Tons from Statewide Initiative Emissions Reductions	8,353
Total Tons resulting from CAP Reductions Measures	2,594
Total Expected Emissions Reductions by 2020	10,947
Colma's Emissions Reduction Requirement for 2020	10,874

Figure 3 below illustrates the BAU and Colma's GHG projections through the year 2020. The BAU 2020 estimate 40,819.

Figure 3: Colma's GHG Projections Through 2020



3.5 Impacts of San Mateo County's Climate Action Plan on Colma GHGs

San Mateo County staff has recently begun work on a CAP that will serve to reduce GHGs in the unincorporated portions of the County, and will include measures for roadways under the County's Congestion Management Plan. According to recent presentations by County staff, the County will not likely adopt this plan until sometime in 2014 or 2015. The measures in the County's CAP will demonstrate a positive reduction in GHGs, from which the Town will benefit. It is premature to consider how much the County's CAP will further reduce Colma's GHGs. A future update of Colma's CAP will include a more detailed review of how the County's CAP further offsets Colma's reduction target.

3.6 Colma's Current Initiatives Addressing Climate Change

The Colma City Council's commitment to sustainability was established prior to the development of this CAP. Under Council's leadership, the Town has been conducting business in a way that considers natural resources and environmental impacts. The Town policies, operations and projects reflect a genuine concern for the health of our community and planet.

The following programs illustrate Colma's sustainability efforts since 2005:

1998

- Installed brick pavers in the roadways instead of asphalt in residential streets, thereby reducing heat absorption.

2002

- Installed rubberized surfacing at all Town park playground areas.

2003

- Utilized public transportation for community outings whenever possible.

2005

- Salvaged and replanted mature palm trees instead of discarding and purchasing new trees.
- Made recycling available at all Town offices and facilities.
- Led the Town's first annual Earth Day community event emphasizing conservation and sustainability.

2008

- Passed a resolution committing to the U.S. Mayors Climate Protection Agreement, Sierra Club's Cool Cities Program and the Silicon Valley Climate Protection Partnership.

2009

- Redesigned Town Website to reduce use of paper and allow remote access to important Town documents.
- Revised annual Business Registration process to facilitate electronic communication.
- Greened the Annual Town Picnic by using all recycled content or reusable serving wear, encouraging recycling, educating attendees on waste reduction and offering recreational activities that highlighted energy conservation.
- Staffed an energizer station for the region's Ride Your Bike to Work Day (now an annual event).
- Launched a pilot program to compare and contrast energy efficient streetlights
- Retrofitted 32 LED and 30 induction lamps funded by California Energy Commission's Energy Efficiency Conservation Block Grant Program

- Held a campaign to increase residential recycling campaign called Colma Can.

2010

- Re-established a Police Bicycle Patrol in Town shopping centers and neighborhoods.
- Held the first annual Town-wide Garage Sale and Clean-Up Day which included dispatching volunteers to various sections of the Town for litter pick-up, no cost extra residential trash disposal, shredding services and e-waste and hazardous waste collection.
- Participated in Peninsula Traffic Congestion Relief Alliance's Commute.org Race for Clean Air, a campaign which encourages and rewards employees for exploring alternate modes of transportation when commuting. This has become an annual event.
- Eliminated/restricted single-serve beverages at all Town-sponsored functions.
- Retrofitted lighting in all Town facilities to use energy efficient fixtures.
- Required all events held in Town facilities to recycle.
- Assessed Town-wide irrigation systems and made adjustments to timers and nozzles to reduce water usage.
- Completed baseline GHG inventories: *Town of Colma 2005 Government Operations Greenhouse Gas Emissions Inventory* and *Town of Colma 2005 Community-Scale Greenhouse Gas Emissions Inventory*

2011

- Developed the *Colma Green* page on the Town's website, providing businesses and residents easy access to energy efficiency, water conservation and recycling information and up to date information on rebates and other programs.
- Initiated a Water Conservation Outreach Campaign.

2012

- Held a Bicycle Rodeo in partnership with Commute.org to encourage a safe alternate to driving to school, work and shopping.
- Passed an ordinance requiring all Colma businesses to recycle (exceeding the state mandate known as AB 341).
- Introduced by reference the County of San Mateo's polystyrene foodware ordinance and single use bag ordinance.
- Completed the *2010 Government Operations Greenhouse Gas Emissions Inventory*.
- Passed "Complete Streets" resolution which requires deliberation of all modes of travel when public works projects are considered.
- Replaced annuals with native plants in municipal landscaping whenever possible.
- Offered composting at Town-sponsored events.
- Created a Town-paid Water Conservation Incentive Program.
- Offered "Greening your Business" audits to local businesses.
- Increased hauler's recycling reporting requirements to improve the monitoring of commercial recycling.
- Increased outreach to businesses to meet AB 341 requirements.
- Instituted annual Colma Creek clean-up.

4. Colma's CAP Measures

Colma's CAP measures were developed from staff's analysis of best practices from other cities and extensive consideration of what would be most effective for Colma's unique community. The CAP Development Team considered alternatives and met with Colma's Internal Working Group to vet their recommendations. Additional meetings were held with department heads to discuss measures specific to their department. Extensive analysis was completed on variables to consider, including cost of implementation and the GHG projections.

The resulting measures, combined with the State emissions reductions, will meet the GHG reduction target in AB 32. Once the City Council adopts the CAP, each of the measures would be further analyzed to consider cost-effective methods for implementation before being presented to the City Council for consideration. Colma's CAP measures are in the following categories:

- **Energy Efficiency, Water Conservation and Green Building**

  38% of Colma's GHGs are from energy usage. Commercial accounts for 34% and residential accounts for 4%. Commercial buildings account for 70% of total electricity use and about 40% of GHGs.[13] Energy efficiency is the most cost-effective measure to implement to achieve GHG reductions. Most homes were built prior to enactment of state energy codes and have good potential to increase energy efficiency and water conservation.

- **Planning and Land Use/Increased Opportunities for Alternative Transportation**

  58% of Colma's GHGs are from transportation (local roads, highways and off road equipment). Reducing emissions from the transportation sector requires addressing three constituent components: reducing the carbon intensity of fuels, increasing vehicle efficiency, and reducing vehicle miles travelled (VMT). Reducing VMT is considerably more difficult because Californians' annual VMT has increased steadily for the past five decades.

- **Recycling and Waste Reduction**

  4% of Colma's GHGs are from commercial and residential solid waste to landfill. Reducing the amount of waste to landfill through reuse, reduction and recycling is an important strategy to reduce emissions because each ton diverted provides significant GHG reductions. The manufacture of products also produces GHGs, because fossil fuel energy is used to extract raw materials, such as wood and metals and to manufacture the products. Petroleum is used for transportation of materials to the factory, moving manufactured goods to market, and moving waste from the consumer's curbside to landfills.

- **Municipal Programs**

  Less than 1% of GHGs are from municipal operations. However, the Town can lead the community's sustainability efforts by example.

- **Solar and Renewables Installations**

  38% of Colma's GHGs are from energy usage. Commercial accounts for 34% of energy and residential for 4%. A sensible energy strategy is to first maximize energy efficiency and then consider generating electricity with solar or other renewable resources.

Table 9 lists the measures under each category, and for each measure contains a brief description, the benefits of implementation, whether it is recommended for early implementation due to lower cost and higher GHG reduction (Top Priority), the staff responsible for implementation and its GHG reduction.

[13] Fuller et al. 2009. *Toward a Low-Carbon Economy: Municipal Financing for Energy Efficiency and Solar Power.* Environment Magazine

Table 9: Summary of Colma's CAP Measures

Measure Description	Top Priority	Implementing Staff	GHG Reductions ($MtCO_2e$)
Near Term Implementation: Next 1-3 Years			
Energy Efficiency, Water Conservation and Green Building			
Implement Residential Energy and Water Efficiency Program. Expand outreach/education for energy upgrade rebates, financial incentives, promote free energy audits and cost-effective energy upgrades. Promote free water audits and water conservation kits. Offer additional incentives to increase participation in program. Expand information on Colma Green website and add case studies. Develop recognition program and monitor participation. Provide checklist of cost-effective actions to homeowners on how to increase efficiency. Participate in regional efficiency programs. **Benefits**: Improves typical homeowner energy efficiency 30%-40%[14] after energy upgrades. Saves money. Participating in regional programs reduces costs and staff resources needed for implementation.	✓	Planning	9
Implement Commercial Energy /Water Efficiency Program. Promote financial incentives and rebates, free energy audits and subsidized retrofits. Promote free water audits and water conservation kits. Promote PACE[15] and add additional incentives for businesses to participate. Monitor participation in the promotions and develop a recognition program for participating businesses. Promote Right Lights and other regional energy effiiciency programs. Provide "Greening your Business" audits to small and mid-size businesses. Participate in regional programs. **Benefits**: Reduces energy costs by 20%-40% for most businesses after upgrades. Improves worker productivity. Reduces air pollution. Improves health through improved indoor air quality. Participating in regional programs reduces costs and Colma staff resources needed for implementation.	✓	Planning	199

[14] *California Public Utilities Commission 2008 Strategic Plan*
[15] PACE, Property Assessed Clean Energy, is a voluntary program offering financing for energy upgrades and solar renewable energy.

Measure Description	Top Priority	Implementing Staff	GHG Reductions ($MtCO_2e$)
Replace 80% of commercial parking lot lighting with energy efficient lighting (LEDs, induction, etc). This would be a voluntary program. **Benefits**: Reduces energy use and operating costs for businesses.	✓	Planning	Supportive Measure
Participate in Bay Area Green Business Program. Join San Mateo County's Bay Area Green Business Program that provides technical assistance to businesses to help them conserve energy, water, reduce waste, prevent pollution and certifies businesses as green that meet specific criteria. Actively promote program through Chamber meetings and *ColmaWorks* business newsletter with successful case studies. Provide incentives for participating and recognize certified geen businesses. Contribute $5,000 to the cost of the San Mateo County Green Business program. Monitor participation. **Benefits**: Participating in regional programs reduces costs and Colma staff resources needed. Provides excellent marketing tools for Colma businesses after Green Business Certification.	✓	Planning	71
Develop and implement a Green Building Ordinance. Develop ordinance to meet Leadership in Energy and Environmental Design[16] (LEED) Silver equivalent requirements for new commercial construction, major additions, renovations and tenant improvements.[17] Include energy efficiency requirements that exceed building code for residential projects. Develop ordinance to be consistent with green building ordinances in neighboring 40 jurisdictions. Monitor program and projects covered by ordinance. **Benefits**: Reduces energy consumption by 30% compared to non-green structures. Yields good financial returns as an investment (an upfront investment of less than 2% of construction costs yields life cycle savings of over ten times the initial investment).[18] Increases property value and appreciation compared to comparable non-green buildings.[19]	✓	Planning, Building, City Attorney	101

[16] LEED, developed by the United States Green Building Council, provides framework for implementing practical and measurable green building design, construction and maintenance of buildings.
[17] The focus is on commercial development because there is limited residential opportunity due to small number of residential units and limited developable residential land.
[18] *The Costs and Financial Benefits of Green Building*, http://new.usgbc.org/resources/costs-and-financial-benefits-green-buildings-report-california's-sustainable-building-task
[19] RICS Research, *Doing Well By Doing Good? An Analysis of the Financial Performance of Green Office Buildings in the USA*, Piet Eichholtz and Nils Kok, Maastricht University, Netherlands; John Quigley, University of California, Berkeley, United States of America, April 2008. http://repositories.cdlib.org/iber/bphup/working_papers/W08-001/

Measure Description	Top Priority	Implementing Staff	GHG Reductions ($MtCO_2e$)
Planning and Land Use / Increased Opportunities for Alternative Transportation			
Implement mandatory Smart Growth development policies where the General Plan and Zoning allow mixed-use (live and work), transit-oriented development (TOD). Colma's General Plan identifies two areas where smart growth policies are appropriate: Mission Road for SSF BART station and El Camino north of F Street for Colma BART station. **Benefits**: Results in reduced vehicle miles travelled as shown in neighboring jurisdictions, improves quality of life, increases alternatives for mixed-use buildings. Reduces per capita cost for public works infrastructure. Improves access to jobs and housing.		Planning	39
Increase bicycle lanes and implement mandatory policies to include walkability and bicycling in new projects and renovations. Incorporate new bicycle lanes into street design; provide bicycle parking and pedestrian friendly access in new non-residential projects and renovations to increase alternatives to driving to access commercial areas. Include traffic-calming and beautification measures, such as planting trees, to increase bicycling usage. **Benefits**: Improves health and reduces vehicle miles travelled as shown in neighboring jurisdictions.		Planning, Public Works, CIP Committee, Recreation, Police	301
Implement policies from *San Mateo County Sustainable Green Streets and Parking Lot Design Guidebook*. Implement guidebook policies for new projects, renovations and parking lot design that minimizes impervious surfaces, manages stormwater runoff in cost-effective and environmentally beneficial manner and emphasizes tree canopy. **Benefits**: Improves air quality. Lowers carbon in the atmosphere. Reduces stormwater runoff and consequent flooding.		Planning, Public Works	Supportive Measure

Measure Description	Top Priority	Implementing Staff	GHG Reductions ($MtCO_2e$)
Promote mandatory Transportation Demand Management (TDM) strategies to new businesses with more than 50 employees. Continue to promote public transit use, carpooling, vanpooling, walking and bicycling. Provide incentives for employees to use alternatives. Continue to work with regional programs to reduce vehicle miles travelled and promote commute alternatives for businesses. Make large employers aware of the provisions of SB 1339.[20] **Benefits**: Improves air quality and health, reduces congestion from cars.		Planning	Supportive Measure
Promote Transportation Demand ManagementTDM strategies for existing businesses with more than 50 empolyees. Promote public transit use, carpooling, vanpooling, walking and bicycling to existing businesses. Providing incentives for employees to use alternatives. Continue to work with regional programs to reduce vehicle miles travelled and promote commute alternatives for businesses. Make large employers aware of the provisions of SB 1339. **Benefits**: Improves air quality and health, reduces congestion from cars.		Planning	Supportive Measure
Implement parking policies for new developments and renovation projects that require prioritized parking for low carbon fuel vehicles and bicycle parking and unbundle parking from property costs. **Benefits**: Promotes and increases use of public transit, fuel-efficient vehicles, bicycles and walking.		Planning	473
Update the General Plan to be consistent with the CAP. Ensure the CAP policies are consistent in the General Plan update, and modify or remove any current General Plan language that is inconsistent with the CAP. **Benefits**: Aligns General Plan with the Town's CAP and ensures CAP policies are included in projects.		Planning, Building	Supportive Measure

[20] SB 1339 authorizes a four-year program to enable the BAAQMD and the Metropolitan Transportation Commission (MTC) to jointly adopt a regional commute benefit requirement.

Measure Description	Top Priority	Implementing Staff	GHG Reductions ($MtCO_2e$)
Implement new planning review requirement for new and redeveloped commercial projects to include preferred parking for carpools, 'plug-in' vehicles, and low carbon vehicles. Use Smart Growth Checklist for new and redeveloped projects to ensure the project meets sustainability criteria. Research additional methods to reduce single auto use in commercial areas. **Benefits**: Encourages reduced vehicle use and use of fuel-efficient vehicles. Increases use of public transportation and bicycling.		Planning	250
Recycling and Waste Reduction			
Increase recycling and waste diversion to meet recycling diversion rate of 80%. Evaluate new cost-effective opportunities to expand commercial and residential recycling programs under the new Request for Proposal for Recycling and Solid Waste Collection Services. Require all businesses to recycle (exceeding AB 341 requirements) and ensure compliance of commercial recycling requirements. Increase recycling by adding new program for food waste/organics to commercial and residential collection. Consider banning yard waste, cardboard and other materials in landfills. **Benefits**: Provides new improved services and options for businesses and residents. Reduces waste to landfill and improves air quality.		Planning	838
Implement single use bag ban and polystyrene ban. Join program that provides monitoring by the San Mateo County Environmental Health Department. **Benefits**: Saves money with monitoring and enforcement by the San Mateo County. Reduces pollution, damage to marine life and, if effective, plastic bag waste in storm drains and staff time necessary to clear them. Reduces waste through re-use (e.g. using canvas bags instead of plastic and paper bags).		Planning	Supportive Measure

Measure Description	Top Priority	Implementing Staff	GHG Reductions ($MtCO_2e$)
Municipal Programs			
Develop and implement a Town Sustainability Policy that emphasizes purchase of recycled materials, energy efficient equipment (e.g. Energy Star certified), and a fuel-efficient fleet. Include recycling at all Town events and use compostable materials or hardware/silverware, where feasible. Whenever possible, purchase fuel-efficient and low carbon vehicles. Maintain optimum fuel efficiency in existing fleet. Encourage businesses to follow the Town's example. **Benefits**: Reduce waste and cost and conserve natural resources.	✓	Public Works, Planning	76
Promote commute alternatives for Town employees and the public. Promote carpooling, public transit use and bicycling with outreach and education programs on the website and at community and Town events. **Benefits**: Provides cost-effective alternative for some employees and the public.		Human Resources	8
Replace 100% street, signal, park and parking lot lighting with energy efficient lighting (LEDs, induction, etc). **Benefits**: Reduces energy use and operating costs for Town.		Public Works	24
Adopt Green Building Ordinance for new Town-sponsored projects and major renovations. Develop ordinance to meet LEED Silver equivalent requirements for new Town construction, major additions and renovations. Consider water conservation alternatives, including using recycled water where cost-efffective and appropriate. Include pervious paving, tree canopy and green parking lot concepts for new projects and renovations. Lead by example by building green Town-sponsored projects. **Benefits**: Reduces energy consumption by 30% compared to non-green structures. Yields good financial returns on investment (an upfront investment of less than 2% of construction costs yields life cycle savings of over ten times the initial investment). [21]	✓	Public Works, Planning	2

[21] *The Costs and Financial Benefits of Green Building*, http://new.usgbc.org/resources/costs-and-financial-benefits-green-buildings-report-california's-sustainable-building-task

Measure Description	Top Priority	Implementing Staff	GHG Reductions ($MtCO_2e$)
Complete a solar installation feasibility study of Town properties and consider participating in regional joint purchase program for solar where feasible and cost-effective. Leads by example by completing a solar installation. **Benefits**: Participating in a regional program reduces installation cost. Reduces operating costs. Generates clean energy.		Public Works, Planning	Supportive Measure
Expand tree planting on public properties and use native and drought tolerant trees/plantings. Implement a program for native and drought tolerant trees and plantings on Town properties, and promote programs for tree planting on private properties. Use comprehensive *Bay Friendly Landscape Guidelines*[22] which provide water conservation and less toxic gardening methods. Consider using a model garden to educate public on non- or less-toxic landscaping techniques. **Benefits**: Reduces water consumption, increases carbon sequestration and increases beautification by adding trees and plantings. Easier maintenance for drought tolerant and native plantings.		Public Works, Park and Recreation	98
Establish method to integrate CAP measures into Town projects and day-to-day decisions. Establish method to integrate CAP measures as early as feasible in the planning and decision making process. Consider integrating a "Colma Climate Action Plan Impact" section in City Council staff reports or use some other method to ensure CAP measures are integrated into Town decisions. Provide annual status on CAP implementation for City Council. **Benefits**: Provides a streamlined approach to integrating sustainability into Town projects as early as feasible into decision-making process.	✓	Public Works, Planning, Building, Recreation, Police, City Manager	Supportive Measure
Research methods to reduce methane released from closed landfills and collaborate with landfill owners where feasible. **Benefits**: Potentially reduces methane release.		Planning, Public Works	Supportive Measure

[22] www.stopwaste.org/home/index.asp?page=378

Measure Description	Top Priority	Implementing Staff	GHG Reductions ($MtCO_2e$)
Solar and Renewable Energy Installations			
Promote solar/renewable energy installations for commercial and residential. Streamline Town permit process requirements for solar energy installations. Consider reducing current solar permit fee structure. Promote use of PACE funding for solar and consider providing additional financial incentives. **Benefits**: Increases solar installations and clean energy generation in the Town.		Planning, Building	11
Longer Term Implementation: Next 4-8 Years			
Adopt a Commercial Energy Efficiency Ordinance that requires completion of a checklist of energy efficiency actions prior to a transfer of title for commercial properties. **Benefits**: Saves Colma businesses money after energy upgrades and reduces energy inefficiencies.		Planning	94
Total GHG Reductions			**2,594**

5. CAP Implementation Strategies

Successful implementation of Colma's CAP requires collaboration of Town staff, the business community and residents, and the ongoing support from the City Council. Where feasible, CAP implementation will be integrated into staff's current workplans. However, some measures have associated costs. Staff completed an analysis of costs using current data available and determined that the total estimated cost is approximately $33,000 per year. Once the City Council adopts the CAP, Town staff will conduct a cost-benefit analysis of each of the measures, including the best method for implementation and the impacts on the commmunity, and bring recommendations for implementation back to Council.

Each of the CAP measures were evaluated in terms of timeline implementation and prioritization. The top priority measures provide cost-effective GHG reductions and were recommended to be implemented in the near term starting in 2013, to allow integration of these sustainability concepts into projects (see Table 9).

CAP implementation will be managed and monitored by the Planning Division. Planning will work with other staff to develop and implement CAP measures and provide the resources needed. It is essential that staff collaborate with Planning to integrate CAP measures into current workplans and into Town decisions as early as feasible. Additionally, the General Plan and other planning and building documents will be updated to incorporate CAP measures.

Planning will hold periodic meetings with staff to discuss CAP implementation, challenges and sharing of resources. Staff will continue to search for funding sources for CAP implementation. Potential funding sources for CAP measures are listed in Appendix C.

Once the CAP is adopted by the City Council, the following implementation actions are recommended:

- Ensure CAP measures are considered and integrated into Town projects as early as feasible (e.g. CIP projects).
- Continue to institutionalize sustainability in Town procedures and policies. Ensure new Town hires are aware of the CAP and the impacts on their projects, actions and decisions.
- Consider adding " Colma's Climate Action Plan Impact" section or similar language in City Council staff reports to detail how the recommended action is consistent with the CAP.
- Consider completion of a GHG inventory every three to five years to determine progress toward the 2020 GHG reduction target.
- Leverage the financial rebate programs funded by the State of California, PG&E and others to support community efforts to improve energy efficiency, install renewable energy technologies, facilitate transit/biking/walking initiatives and support households and businesses in taking other actions.
- Expand website information and post marketing materials at key locations, including Town Hall, Town Hall Annex and the Community Center. Additional actions may include collaborating with PG&E and local water districts to further develop marketing presentations and workshops for the community. Specific actions that community members can take today are included in Appendix B.
- Provide an annual CAP progress report to the City Council and post progress on the Town website. Monitoring CAP implementation progress is a critical component to ensure that the GHG reduction targets are met.

5.1 Timeline

The following table lists the major milestones in the CAP implementation process for the next few years.

Table 10: CAP Implementation Timeline

Milestone	Target Date (CY)
GHG Community Inventory Completed	Q3 2010
GHG Reduction Target Established	Q2 2012
Draft CAP Completed	Q4 2012
Council Study Session Review	Q1 2013
Public Review of CAP Draft	Q2 2013
CAP Consideration and Adoption	Q2 2013
CAP Measure Analysis and Presentation to City Council	Q3 2013
CAP Implementation Begins	Q3 2013
1st Annual CAP Progress Implementation Report	Q3 2014
2nd GHG Community Inventory Completed	Q4 2014
2nd Annual Cap Progress Implementation Report	Q3 2015

5.2 Monitoring and Improvement

The Planning Division is responsible for monitoring and reporting on CAP implementation progress. An annual report of CAP implementation will be provided to the City Council and a summary will be placed on Colma's website. Should monitoring efforts find that the CAP is falling short of its GHG reduction target, the Town would consider adding voluntary and mandatory measures to the CAP in order to meet the target. Ongoing monitoring is critical in order to demonstrate that the CAP is achieving its goals, thereby maintaining its status as a Qualified GHG Reduction Strategy over time. The implementation and monitoring of the CAP is crucial to the ability of subsequent projects to tier their GHG analysis under CEQA.

The CAP Monitoring and Improvement Program includes:

- Every year, Planning will issue an Annual Climate Action Plan Implementation Report (ACAPIR), to update the City Council, residents, and other interested stakeholders on the progress implementing the CAP measures. The ACAPIR will provide recommendations for changes to the implementation strategy or the Plan itself.
- Every three to five years, a GHG inventory will be conducted in accordance with the community emissions protocol. The inventory will allow Colma to understand how emissions levels are tracking.

6. Adaptation Planning for Climate Change Impacts

Climate scientists agree that the climate is changing rapidly. According to the World Meteorological Organization, in their news release *2000-2009, The Warmest Decade*:[23] "The decade of the 2000s (2000–2009) was warmer than the decade spanning the 1990s (1990–1999), which in turn was warmer than the 1980s (1980–1989). The 2000–2009 decade will be the warmest on record, with its average global surface temperature about 0.96 degree F above the 20th century average. This will easily surpass the 1990s value of 0.65 degree F."

If GHG emmissions stopped tomorrow, the climate would still continue to change due to the length of the carbon cycle — the ability of the ocean and plants to absorb the excess carbon. Adaptation planning may be most effective at the state and regional levels, due to the scale of resources needed to develop and implement a coordinated plan. The 2009 California Climate Adaptation Strategy[24] was developed to guide California's efforts in adapting to climate change impacts.

While the Town of Colma can do its part to reduce GHG, the Town will not be immune to the impacts of global and regional changes that will impact residents' quality of life. For example, Colma would not be directly impacted by flooding from sea level rise, but would be impacted by flooding at San Francisco International Airport and portions of Highway 101, as the current projections indicate. Regional or statewide droughts could result in local water shortages. Extreme heat would impact people, animals and plant life and increase fire risks on San Bruno Mountain. Food shortages from local and regional food suppliers could occur. For these reasons, Colma should participate in and provide support to regional adaption planning efforts.

6.1 Adaptation Planning Strategies

Effective adaptation planning and management entails dealing with uncertainty. It is a long-term process that should allow immediate action when necessary and adjust to changing conditions and new knowledge. Adaptation will likely be an ongoing process of planning, prioritization and specific project implementation.

Five important steps to effective adaptation planning are summarized below:

1. Increase Public Awareness; Engage and Educate the Community

Make the public understand the magnitude of the climate change challenge and why action is needed. Include all stakeholders in the planning process. These efforts should leverage similar efforts undertaken at the regional, state, and federal levels.

2. Assess Vulnerability

Identify short-term and long-term adaptation strategies. Level of risk can be categorized in terms of likelihood of damage within the forecasting period and the severity of the damages. The vulnerability assessment can also provide a framework for agency and community education and participation, contribute to other planning documents and identify funding needs.

3. Establish Goals, Criteria and Planning Principles

Engage with stakeholders to establish planning priorities, determine decision criteria, and build community support for taking action. Rank physical and natural assets for preservation efforts. Where possible, look for situations where a mitigation action has adaptation benefits (e.g., planting trees to reduce urban heat islands while sequestering carbon and providing habitat).

[23] WMO 2010. *2000–2009, THE WARMEST DECADE* http://www.wmo.int/pages/mediacentre/press_releases/pr_869_en.html
[24] http://www.climatechange.ca.gov/adaptation/

4. Develop Adaptation Plan

Identify specific strategies, develop actions and cost estimates and prioritize actions to increase local resilience of infrastructure and critical assets, including natural systems. Look for synergies between natural processes and engineering solutions. An adaptation plan should include a prioritized list of actions (e.g. projects) with a timeline, capital expenditure plan and framework for monitoring and adaptive management.

5. Ongoing Monitoring and Adaptive Management

Reassess climate change vulnerabilities on a regular basis and modify actions accordingly. This includes monitoring the effectiveness of current policies, strategies and actions, and keeping up with changing science, funding opportunities and regulatory actions. A menu of potential adaptation strategies and measures is provided in the table below.

Table 11: Adaptation Strategies and Measures

Climate Change Impacts	Sample Adaptation Measures
Regional Drought Risks to reliable water supply and potential conflicts between urban and agricultural users	• Increase capacity for community water storage • Promote local water conservation • Make water conservation a top priority • Construct water reclamation and reuse projects
Extreme Heat Events Risks to public health and infrastructure	• Identify vulnerable communities and develop emergency preparedness plan • Reduce urban heat islands through use of cool roofs and other reflective surfaces • Plant trees strategically and enact new requirements for shading in new parking lots and other large paved areas • Reduce risk of wildfires through fuels reduction in the urban-wild land interface
Increased Flooding and Severe Weather Events Risks to public health, private property, public infrastructure and ecosystems	• Integrate local flood management plans with adaptation planning • Identify vulnerable communities and develop emergency preparedness plans • Establish local land use policies that decrease flood risk; avoid building in high-risk areas • Make modifications to storm water system routing and storage and develop storage areas for peak flows • Maximize use of bioswales and permeable surfaces in both greenscape and hardscape areas to improve aquifer recharge and mitigate flooding from stormwater
Air Quality and Other Public Health Concerns	• Restrict use of fireplaces on high-risk days • Monitor potential threats to public health, including new diseases, and develop public awareness

Climate Change Impacts	Sample Adaptation Measures
Risks to Local Agriculture and Food Supply	• Promote the planting of fruit and nut trees • Reduce food waste by implementing a local organics collection and composting program where food scraps, food-soiled paper, waxed cardboard, wood crates and landscape trimmings can be composted.

Appendix A: List of Acronyms

AB 32	The California Global Warming Solutions Act of 2006
ARRA	American Recovery and Reinvestment Act
BAAQMD	Bay Area Air Quality Management District
BAU	business as usual
CAP	Climate Action Plan
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
GHG	greenhouse gas
ICLEI	International Council for Local Environmental Initiatives
IPCC	Intergovernmental Panel on Climate Change
kWh	kilowatt hour
LCFS	Low Carbon Fuel Standards
LEED	Leadership in Energy and Environmental Design
MPO	metropolitan planning organization
$MtCO_2e$	Metric ton carbon dioxide equivalent
NOAA	National Oceanic and Atmospheric Administration
PACE	property assessed clean energy
PG&E	Pacific Gas and Electric Company
ppm	parts per million
PV	photovoltaic
RPS	renewable portfolio standard
SSMC	Sustainable San Mateo County
TDM	Transportation Demand Management
TOD	transit-oriented development
VMT	vehicle miles travelled

Appendix B: 10 Steps to Reduce Your Carbon Footprint

(Modified from CoolClimate.org)

1. Reduce how many miles you drive, consider bicycling or public transport, change your commute

Did you know that one third of the CO_2 produced in the U.S. is from the transportation of people or goods? Pick one day a week to walk, bike, take public transportation or carpool to work or run errands. Silicon Valley Bicycle Coalition (http://bikesiliconvalley.org/) has great resources and can help you plan your bike commute. Another resource for planning trips via public transportation is 511.org. If possible, live close to your workplace and talk to your employer about working from home or subsidizing the costs of public transportation. When driving, remember to combine several car trips into one trip and avoid idling. Additionally, you can get better fuel efficiency by following the speed limit. Exceeding the speed limit by just 5 mph during highway travel results in an average fuel economy loss of 6%.

2. Consider buying in bulk, consider packaging in your purchase options to reduce waste

Did you know that the average American generates about 4.4 lbs of trash each day? To reduce the amount of trash you generate, follow these few easy steps. Use re-usable coffee mugs and shopping bags. If you forget your mug or bag at the store, buy a new reusable mug or bag and keep the extra one in your purse or car for use the next time you are out. Alternatively, set aside $1 each time you forget your mug or bag; depending on your memory, you will have enough funds to purchase a reusable item eventually. Also, reuse as many things as possible and recycle at home, work, and school. Compost pick-up is now available in more parts of San Mateo County.

3. Consider shopping locally and use foods grown or produced more locally

The shorter the distance your food travels to your plate or that product travels to your home, the fewer GHGs are produced. Declare one day a week to be a "buy local day" and eat foods produced within 50 miles of your house. Participate in community-supported agriculture and community-supported fishery programs and shop at farmers markets.

Buy produce and fish labeled “As Fresh As It Gets,” signifying that it was grown or harvested in San Mateo County. Support restaurants and businesses accredited by the “As Fresh As It Gets” campaign, signifying that they use county-grown produce, fish, and other products. For a list of in-season produce and fish, farmers market locations, and accredited businesses and restaurants, visit www.freshasitgets.com.

4. Reduce water consumption

Did you know that water-related energy use consumes 19% of California's electricity, 30% of its natural gas, and 88 billion gallons of diesel fuel every year? To reduce your water consumption at home, turn off your water when it's not being used, take shorter showers, stop unseen leaks by reading your meter, install low-flow shower heads and aerators on your faucet, install and use water-efficient landscaping and irrigation methods (for example, plant drought tolerant plants and/or install permeable surfaces and drip irrigation systems), and use EnergyStar appliances. The Bay-Friendly Gardening Program (www.stopwaste.org/home/index.asp?page=8) provides resources for selecting plants, conserving water and fostering soil health.

5. Unplug it

Did you know that appliances, chargers, home theater equipment, stereos, and televisions use electricity even when their power is off? Eliminating this "leaking" electricity could save you 6% to 26% on your average monthly electricity bill. Take a walking tour of your home, unplug seldom-used appliances, and install power strips so that the power to frequently used items can be easily turned off.

6. Change all lighting to CFLs, change lights to LEDs

Replace any incandescent light bulbs that remain in your home with compact fluorescent lights (CFLs). Replacing one incandescent light bulb with a CFL can save $30 or more in electricity costs over the bulb's lifespan.

7. Set your thermostat for the season

Set your thermostat in winter to 68° or less during the daytime, and 55° before going to sleep (or when you are away for the day), to save 5% to 20% of your space-heating costs. During the summer, set thermostats to 78° or more to save 5% to 20% of your cooling costs. For an easy fix, purchase an inexpensive programmable thermostat that makes these changes for you.

8. Increase energy efficiency at home

Did you know that you can save up to 350 pounds of CO_2 and $150 per year at home by simply keeping air filters clean? To determine more ways to increase energy efficiency, take advantage of subsidized home energy audits offered through Energy Upgrade California. When you are ready to purchase an appliance, ensure that you purchase an EnergyStar appliance. To reduce carbon emissions associated with energy use, install or purchase alternative energy for your electricity needs.

9. Stop unwanted services

Did you know that junk mail production in the U.S. consumes as much energy as 2.8 million cars? Stop your junk mail at https://www.directmail.com. Stop unwanted catalogs at https://www.catalogchoice.org.

10. Bring your sustainability efforts to work

Encourage your workplace to implement an Environmental Preferable Purchasing Policy and or a Sustainability Policy. Participate in 'green efforts' to make your workplace more sustainable. See Recycleworks.org for more good ideas on greening your workplace.

Appendix C: Summary of Potential Funding Sources

For implementation of the CAP, Colma should evaluate strategies for financing climate protection actions and provide adequate, reliable, and consistent long-term program funding. This appendix provides an overview of available funding sources to help determine appropriate potential program funding sources and funding levels to support existing and new programs outlined in this plan. Other funding sources may be available that are not listed here.

State Funding

California Solar Initiative (CSI)

www.gosolarcalifornia.ca.gov/csi/index.php

The California Solar Initiative (CSI) is the solar rebate program for California consumers that are customers of the investor-owned utilities - Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E). Together with the rebate program for new solar homes and rebate programs offered through the dozens of publicly owned utilities in the state— the CSI program is a key component of the Go Solar California campaign for California.

This program funds solar on existing homes as well as existing, or new commercial, agricultural, government and non-profit buildings. It funds both solar photovoltaics (PV), as well as other solar thermal generating technologies. This program is sometimes referred to as the CSI general market program and consists of the following components:

- *CSI-Thermal.* A solar hot-water rebate program for customers in PG&E, SCE, and SDG&E territories. This program funds solar hot water (solar thermal systems) for homes and businesses.
- *Single-family Affordable Solar Homes (SASH).* A solar rebate program for low-income residents that own their own single-family home and meet a variety of income and housing eligibility criteria.
- *Multifamily Affordable Solar Housing* (MASH). A solar rebate program for multifamily affordable housing.
- *CSI Research, Development and Demonstration (RD&D).* A solar grant program for exploring solar technologies and other distributed generation technologies.

The CSI offers solar customers different incentive levels based on the performance of their solar panels, including such factors as installation angle, tilt, and location rather than system capacity alone. This performance framework ensures that California is generating clean solar energy and rewarding systems that can provide maximum solar generation.

The CSI program has a total budget of $2.167 billion between 2007 and 2016 and a goal to install approximately 1,940 MW of new solar generation capacity.

Energy Conservation Assistance Account Program (ECAA)

www.energy.ca.gov/efficiency/financing/index.html

Projects that are not eligible for funding under the ARRA Loan Program may be eligible for funding through the ECAA, which offers loans with three percent interest to finance energy efficiency improvements.

Energy Upgrade California

energyupgradeca.org/overview

The Energy Upgrade California program helps residential and commercial consumers and the building industry to access available rebate programs and financing options for energy efficiency and renewable energy projects. The program is a partnership among California counties, cities, non-profit organizations

and the state's investor-owned utilities and publicly owned utilities. Funding for this effort comes from the American Recovery and Reinvestment Act (ARRA, also known as federal stimulus funds).

PG&E Rebate Programs

PG&E offers a full suite of energy efficiency rebates programs to support its customers in saving energy and money:

- Rebates for households: www.pge.com/myhome/saveenergymoney/
- Rebates for businesses: www.pge.com/mybusiness/energysavingsrebates/

Below, we provide some specific examples of PG&E programs available to the community.

PG&E San Mateo County Energy Watch Program

www.smcenergywatch.com

San Mateo County Energy Watch provides energy efficiency services and retrofits and assists businesses and moderately low-income households to identify cost-effective projects. The program's services include energy audits, special rebates and incentives.

PG&E Residential Appliance Rebates

www.pge.com/myhome/saveenergymoney/rebates/appliance/

PG&E offers rebates to customers who purchase qualifying energy efficient appliances, including dishwashers, hot-water heaters and room air conditioners. Rebates range from $30 to $75 for qualifying appliances. PG&E and American Water are also currently offering a combined rebate of up to $250 for installing high-efficiency clothes washers.

PG&E LED Streetlight Replacement Program

www.pge.com/mybusiness/energysavingsrebates/rebatesincentives/ref/lighting/lightemittingdiodes/incentives/index.shtml

The Town of Colma may be eligible for PG&E's LED streetlight replacement program which provides rebates to cities that replace existing streetlights with more energy efficient LED fixtures (up to $125 per fixture).

PG&E Commercial Appliance Rebates

http://www.pge.com/mybusiness/energysavingsrebates/rebatesincentives/

PG&E offers rebates to business customers on hundreds of products including refrigeration units, lighting fixtures, heating systems, food service appliances, boilers and water heaters, and insulation.

PG&E Home Energy Efficiency Improvements Rebates

www.pge.com/myhome/saveenergymoney/rebates/remodeling/

PG&E offers rebates to customers who make energy efficiency improvements when remodeling their homes. Currently PG&E offers a rebate of up to $0.20 per square foot for cool roof installations and $0.15 per square foot for attic and wall installations. Additionally, PG&E has rebates for homeowners who upgrade their home's heating and cooling systems. Rebates are available for installing energy efficient furnaces (up to $300), air conditioning units (up to $50) and whole house fans (up to $100). Finally, PG&E will provide up to $400 in rebates to customers who test and seal their home's duct system.

Local Energy Programs

Acterra's High Energy Homes Project

www.acterra.org/programs/highenergy/index.html

Acterra's High Energy Homes project helps residents in homes with high PG&E bills to analyze and identify costly energy "leaks" that provide little or no value. Through a free on-line analysis of a PG&E bill data, the program creates an energy profile for the home and highlights low-cost energy-saving opportunities that can significantly reduce bills and conserve energy. The audit starts online via a secure website. A home visit may be scheduled if the data from the home's energy profile presents an unusual pattern.

California Youth Energy Services (CYES)

www.risingsunenergy.org

Since 2000, Rising Sun Energy Center has run CYES, a summer youth employment and community efficiency retrofit program in the Bay Area. CYES hires young people (ages 15-22) and trains them to become Energy Specialists, serving their communities with a FREE Green House Call. Energy Specialists install free energy and water saving devices, and provide personalized recommendations and education for further savings in homes. CYES provides services to all community members regardless of income. However, it was designed to serve hard-to-reach residents including renters, non-English speaking households, and low-moderate income households. It provides youth with opportunities for training and meaningful employment, which are often not adequately available to them. CYES youth receive employability skills training, paid summer employment, and the foundation for a green career.

Green@Home HouseCalls

www.acterra.org/programs/greenathome/index.html

Green@Home HouseCalls help fight climate change by saving residents energy, money and CO_2. Trained volunteers meet with residents in their homes to install simple energy-saving devices and create home energy conservations plans. Volunteers demonstrate environmentally friendly choices and foster a deeper awareness of the need for change. HouseCalls are available to all residents of participating cities whether you rent or own.

RightLights Program

http://rightlights.org/

The RightLights Program provides subsidized energy efficiency upgrades of lighting and refrigeration systems, with free professional assistance to help businesses lower energy bills and boost cash flow. Generally, any commercial PG&E customer who receives electric service on the A1, A6, A10, or E19-v rate schedules is eligible for the program. Property owners as well as businesses who lease their space are encouraged to apply. Multi-family residential properties are eligible for RightLights in their common-use areas only.

Sustainable San Mateo County (SSMC) Energy Ambassador Program

http://sustainabilityhub.net/contest/ea-parties/

SSMC's Energy Ambassador Program educates homeowners on home energy efficiency as it relates to behaviors, electricity usage, and the building envelope. In order to do this, SSMC takes a "top-down" approach to make sure homeowners recognize all aspects of home energy efficiency. The program has three components used to engage homeowners: a Personal Energy Review, an invitation to attend an Energy Ambassador Party, and hosting an Energy Ambassador Party. The ultimate goal of the program is for homeowners to take steps in each area of energy efficiency while helping to educate their friends and neighbors through the Energy Ambassador party.

SSMC Personal Energy Review Program

http://sustainabilityhub.net/contest/per

With a Personal Energy Review (PER), SSMC customizes a free one-on-one evaluation for each homeowner. It is a chance to learn about the three aspects of home performance (behavior, electricity usage, and the building envelope). An SSMC staff member or volunteer will visit the home. During the visit, SSMC will analyze how the home is performing and what it is costing. In other words, SSMC helps identify the issues in the home and the utility bill and can help create a plan for curing those symptoms.

Federal Funding

Federal Transportation Investment Generating Economic Recovery (TIGER) Grant

www.dot.gov/recovery/

The Federal TIGER grant program was created by the American Investment and Recovery Act (ARRA) of 2009. Cities can apply for a TIGER grant to fund parking garages, and infrastructure to support electric battery-swap station and parking for electric vehicles.

Other Funding Opportunities

American Forests Global ReLeaf Grant Program

www.americanforests.org/global_releaf/

American Forests is a non-profit organization founded in 1875 that promotes forest conservation. American Forests' Global ReLeaf Program provides grants to fund tree-planting projects in urban and natural areas.

California ReLeaf Urban Forestry Grant Program

http://californiareleaf.org/programs/grants

The California ReLeaf Urban Forestry grant program provides funding to assist nonprofit and community-based groups throughout California with urban forestry projects. The program is funded through a contract with the California Department of Forestry and Fire Protection (CAL FIRE).

Large Landscape Audit

http://bawsca.org/water-conservation/commercial-users/large-landscape-audit-program/

BAWSCA and its participating member agencies offer this audit program to select large landscapes within the service area free of charge. The program includes the development and monthly distribution of landscape water budgets for selected accounts and actual large landscape surveys to assess landscape watering needs. A key component of the program is ongoing monitoring/tracking of actual water use and estimated water savings for the sites surveyed. Some local water companies also offer water audits for no charge.

Appendix D: State, Regional and Local Efforts

State of California Climate Change Reduction Efforts

Assembly Bill 32, the California Global Warming Solutions Act of 2006

In September 2006, the California legislature passed Assembly Bill (AB) 32, which set the goal of reducing GHG emissions back to 1990 levels by 2020 (or 15% below current 2005 levels). AB 32 finds that "global warming poses a serious threat to economic well-being, public health, natural resources and the environment of California." The legislation granted authority to the Air Resources Board to establish multiple mechanisms (regulatory, reporting, voluntary and market) to achieve quantifiable reductions in GHGs to meet the statewide goal.

Assembly Bill 1493, the Pavley Bill

In 2002, the California legislature enacted Assembly Bill (AB) 1493 (aka "the Pavley Bill"), which directs the Air Resources Board to adopt standards that will achieve "the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles," taking into account environmental, social, technological, and economic factors. In September 2009, the Air Resources Board adopted amendments to the Pavley regulations to reduce GHGs in new passenger vehicles from 2009 through 2016.

Senate Bill 375

In September 2008, Senate Bill (SB) 375 was signed into law to provide emissions reduction goals related to vehicle-miles traveled on a regional planning level. The bill seeks to align regional transportation planning efforts with regional GHG reduction targets and land use and housing allocations. SB 375 requires metropolitan planning organizations (MPOs) to adopt a sustainable communities strategy or alternative planning strategy. The Air Resources Board, in consultation with the MPOs, has set a per capita GHG reduction target for emissions of passenger cars and light trucks in the San Francisco Bay Area of 7% below 2005 levels by 2020, and 15% below 2005 levels by 2035.

Senate Bill 97, CEQA Guidelines for Addressing GHG Emissions

California Environmental Quality Act (CEQA) requires public agencies to review the environmental impacts of proposed projects, including General Plans, Specific Plans and specific kinds of development projects. In February 2010, the California Office of Administrative Law approved the recommended amendments to the State CEQA Guidelines for addressing GHGs. The amendments were developed to provide guidance to public agencies regarding the analysis, mitigation, and effects of GHGs in draft CEQA documents.

California 33% Renewable Portfolio Standard (RPS)

California's RPS was originally established by legislation enacted in 2002. Subsequent amendments to the law have resulted in a requirement for California's electric utilities to have 33% of their retail sales sourced from eligible renewable resources in 2020 and all subsequent years. Renewable resources include wind, solar, geothermal, wave, and small hydroelectric power.

BAAQMD CEQA Guidelines

BAAQMD encourages local governments to adopt a GHG Reduction Strategy that is consistent with AB 32 goals. A Qualified GHG Reduction Strategy may streamline environmental review of community development projects. According to the BAAQMD, if a project is consistent with a Qualified GHG Reduction Strategy, then it can be presumed that the project will not have significant GHG impacts. This approach is consistent with the following State CEQA Guidelines, Section 15183.5.a:

"Lead agencies may analyze and mitigate the significant impacts of greenhouse gas emissions at a programmatic level, such as a plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic

review. Project-specific environmental documents may rely on an [Environmental Impact Report] containing a programmatic analysis of greenhouse gas emissions."

This Plan provides a foundation for future development efforts in the community. It is expected that environmental documents for future development projects will identify and incorporate all applicable voluntary and mandatory measures from this Plan for projects undergoing CEQA review.

Regional and Local Efforts

The following regional and local efforts promoting GHG reductions are already under way.

City/County Association of Governments of San Mateo County (C/CAG).

C/CAG is a council of governments consisting of the County of San Mateo and its 20 cities. The organization deals with topics such as transportation, air quality, stormwater runoff, hazardous waste, solid waste and recycling, land use near airports, abandoned vehicle abatement and issues that affect quality of life in general. C/CAG supports a number of sustainability initiatives including the following:

- **San Mateo County Energy Watch**. This program is a local government partnership between PG&E and C/CAG to promote energy efficiency in municipal and non-profit buildings. The program is managed and staffed by RecycleWorks, a program of the County of San Mateo.
- **Congestion Management Agency**. C/CAG serves as the Congestion Management Agency for San Mateo County to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion and promote countywide solutions.
- **Sustainable Communities Strategy/Regional Transportation Plan**. C/CAG is collaborating with local governments in San Mateo County as well as regional agencies to develop a Sustainable Communities Strategy (SCS) in compliance with the requirements of SB 375. The SCS will facilitate more focused development in priority development areas near public transit stations. The aim of the San Mateo County SCS is to better integrate land use with public transportation in order to reduce GHGs.
- **Energy Upgrade California in San Mateo County**. This San Mateo program aims to help residential consumers make improvements to their homes so they will use less energy, conserve water and other natural resources, and become healthier and more comfortable. The program connects homeowners with participating contractors who can help plan and complete energy efficiency projects and take advantage of rebates. Energy Upgrade California is a partnership among California counties, cities, non-profit organizations and the state's investor-owned utilities (e.g. PG&E).

Joint Venture: Silicon Valley Network

Established in 1993, Joint Venture: Silicon Valley Network provides analysis and action on issues affecting the local economy and quality of life. The organization brings together established and emerging leaders—from business, government, academia, labor, and the broader community—to spotlight issues and work toward innovative solutions. Joint Venture is dedicated to promoting climate-friendly activities that help the local economy and improve quality of life in Silicon Valley.

PG&E's Sustainable Communities Team

A PG&E Community Energy Manager has been assigned to San Mateo County to work with each municipality to develop a comprehensive energy management strategy that the jurisdiction can implement across institutional, residential, business, and industrial sectors. In addition, PG&E can provide city and county energy usage data, GHG inventory assistance and information on innovative pilot grant funding for projects that help to reduce GHG emissions in each community.

Silicon Valley Leadership Group (SVLG) Bay Area Climate Change Compact

SVLG is an organization consisting of principal officers and senior managers of member companies to work cooperatively with local, regional, state and federal government officials to address major public policy issues affecting the economic health and quality of life in Silicon Valley. In 2009, SVLG organized the Bay Area Climate Change Compact, which establishes a framework for regional cooperation and setting aggressive goals for the reduction of GHGs.

Sustainable San Mateo County (SSMC)

SSMC was established in 1992 by a group of San Mateo County citizens who sought to create a broader awareness of the sustainability concept. SSMC supports multiple programs to promote energy efficiency, alternative transportation and education on sustainability concepts which focus on the intersections of the environment, the economy and social equity. SSMC's Energy Ambassador program supports the Energy Upgrade California program by providing homeowners free personal energy reviews and education on home energy efficiency.

Sustainable Silicon Valley (SSV)

In 2004, SSV organized a regional voluntary initiative, setting a visionary target of reducing CO_2 emissions by 20% below the region's 1990 levels by the year 2010. SSV partners participating in the voluntary CO_2 emissions reduction program determine their own baseline year and a CO_2 percentage reduction goal to reach by 2010. Each pledging partner also chooses how they will meet this target. Options abound – from improvements in equipment efficiency to energy conservation, the use of renewable energy sources, and purchase of green power and/or promotion of alternative commute options.

Appendix E: Colma's 2005 and 2010 Municipal GHG Inventories

The following tables provide a summary comparison of the *Town of Colma 2005 Government Operations Greenhouse Gas Emissions Inventory* and the *Town of Colma 2010 Government Operations Greenhouse Gas Emissions Inventory*.

Government Operations GHG By Sector

Sector	$MtCO_2e$	
	2005	2010
Buildings and Facilities	92	108
Public Lighting	8	28
Water and Stormwater Services	1	0.5
Vehicle Fleet	161	72
Employee Commute	146	148
Solid Waste	23	14
Total	431	370.5

Government Operations GHG By Source

Source	$MtCO_2e$	
	2005	2010
Electricity	70	108
Natural Gas	19	24
Diesel	9	5
Gasoline	303	216
Refrigeration	5	3
Solid Waste Process	23	14
Total	429	370

Building and Other Facilities GHG by Facility

Facility	$MtCO_2e$	
	2005	2010
Community Center	34	31
Corporation Yard	8	6
Police Station	9	44
Recreation Center	6	5
Town Hall	34	16
Total	91	102

Building and Other Facilities GHG by Source

Source	$MtCO_2e$	
	2005	2010
Electricity	62	77
Natural Gas	18	22
Diesel	6	1
Refrigeration	6	2
Total	92	102

Vehicle Fleet GHG by Department

Department	$MtCO_2e$	
	2005	2010
Police	135	63
Public Works	21	9
City Manager	5	0
Total	161	72

Solid Waste GHG by Facility

Facility	$MtCO_2e$	
	2005	2010
Community Center	5	6
Corporation Yard	7	4
Police Station	4	2
Town Hall	7	2
Total	23	14